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Subject:

Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site
Supplemental Remedial Investigations/Feasibility Studies Monthly Progress Report
Area 1 – Morrow Dam to Plainwell Dam
Area 2 – Plainwell Dam to Otsego City Dam (Otsego City Impoundment)
November 2010

SEDIMENTS

Dear Jim:

Date:
December 15, 2010

Attached is the 45th monthly progress report for the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site Supplemental Remedial Investigation/Feasibility Study (SRI/FS). This progress report is submitted as per Paragraph 37 of the February 2007 Administrative Settlement Agreement and Order on Consent (AOC) for Remedial Investigations/Feasibility Studies (Docket No. V-W-07-C-864), as well as Section 7.1 of the associated Statement of Work (SOW). If you have any questions, please do not hesitate to contact me.

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Sincerely,

ARCADIS

Michael J. Erickson, P.E.
Vice President

Our ref:
B0064539.0001.00014
#2

DEP/plf
Attachment

Copies:

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**MONTHLY PROGRESS REPORT FOR THE ALLIED PAPER, INC./PORTAGE CREEK/
KALAMAZOO RIVER SUPERFUND SITE SRI/FS
AREA 1 (MORROW DAM TO PLAINWELL DAM)
AREA 2 (PLAINWELL DAM TO OTSEGO CITY DAM – OTSEGO CITY IMPOUNDMENT)**

REPORT #45, NOVEMBER 2010

**PREPARED BY ARCADIS
DECEMBER 15, 2010**

ON BEHALF OF GEORGIA-PACIFIC LLC

SUBMITTED TO

**JAMES SARIC, REMEDIAL PROJECT MANAGER
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

**Monthly Progress Report for the Allied Paper, Inc./Portage Creek/
Kalamazoo River Superfund Site SRI/FS – Area 1 and 2**

REPORT #45, NOVEMBER 2010

Significant Developments and Activities during the Period, Including Actions Undertaken Pursuant to the AOC and SOW

- On November 3, the United States Environmental Protection Agency (USEPA) hosted a public meeting in Plainwell to provide an update on Site activities.
- On November 23, ARCADIS convened a conference call with the Exposure Point Concentration (EPC) Work Group in which the EPC and exposure unit approaches to be used in the Area 1 Baseline Ecological Risk Assessment (BERA) were agreed upon. ARCADIS forwarded materials in support of the call on November 22.
- In November, ARCADIS followed up with the United States Fish and Wildlife Service (USFWS) on the status of its review and approval of a toxicity reference value (TRV) memo provided to USFWS by ARCADIS on August 6.

Data Collected and Field Activities Conducted during the Period

- On November 2, ARCADIS notified CH2M HILL of the upcoming Area 2 field work schedule.
- On November 10 and 12, ARCADIS installed four staff gages (OCSG-1 through OCSG-4) in Area 2. Table A presents the gage information.
- On November 10, 11, 12, 15, 16, 17, 18, 19, 29, and 30, ARCADIS measured water levels at the staff gages in Area 2. Table A presents the staff gage data.
- On November 12 and 30, ARCADIS measured flow in the Gun River at staff gage OCSG-2 in Area 2. These data are included in Table A.
- On November 15, 16, 17, 18, 29, and 30, ARCADIS surveyed the bank profile at 33 locations and established erosion pins at 18 locations in Area 2.
- On November 16, 17, and 18, ARCADIS probed and cored along transects in Area 2. Cores were collected for visual classification only. Table B presents the probing data.
- On November 30, ARCADIS visually classified the sediment cores from river transects OCRT-2 and OCRT-3 collected in Area 2 in November. Table C presents the sediment data.

Laboratory Data Received during the Period

- No data were received in September, so no validated data are included in this monthly report.

**Monthly Progress Report for the Allied Paper, Inc./Portage Creek/
Kalamazoo River Superfund Site SRI/FS – Area 1 and 2**

REPORT #45, NOVEMBER 2010

Problems

- None.

Actions Taken to Correct Problems

- None.

Developments Anticipated during the Next Two Reporting Periods

- On December 1, USEPA is scheduled to approve the Area 2 Work Plan.
- In December, ARCADIS will survey the location of staff gage OCSG-4. This gage was surveyed in November; however, ARCADIS was not satisfied with the original data collected.
- In December, ARCADIS plans to continue sediment probing and core processing, bank profile surveying, erosion pin placement, staff gage monitoring, and flow measurement in Area 2.
- In December, ARCADIS expects to have a complete set of TRVs for use in the Area 1 BERA that has been agreed upon with representatives of USEPA, USFWS, and Michigan Department of Natural Resources and Environment.
- In December, the EPC Work Group is scheduled to develop a summary memo to document decisions regarding EPC approaches for the Area 1 BERA.
- No data were received in October, so no validated data will be included in the December monthly report.

Georgia-Pacific LLC
Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site
Supplemental Remedial Investigations/Feasibility Studies
Monthly Report #45, November 2010

Table A — Area 2 — Otsego City Impoundment - Staff Gage Locations and Data

Staff Gage	Coordinates		Elevation (ft)	Staff Gage Elevation	Location
	Northing	Easting			
1 (OCSSG-1)	353498.626	12764712.77	684.92	1.0	Kalamazoo River at Farmers Street
2 (OCSSG-2)	353467.103	12769283.48	698.22	3.0	Gun River at 106th Avenue Bridge
3 (OCSSG-3)	352249.013	12767911.29	695.855	1.7	Kalamazoo River just upstream of Gun River Confluence
4 (OCSSG-4)	Not surveyed yet				Kalamazoo River at the former Plainwell Dam

Staff Gage	Date	Time	Gage Height (ft)	Flow (cfs)
1	11/12/2010	921	0.95	--
	11/15/2010	1600	0.9	--
	11/16/2010	1642	0.92	--
	11/17/2010	813	0.95	--
	11/18/2010	1650	0.96	--
	11/19/2010	747	0.95	--
	11/19/2010	1659	0.92	--
	11/29/2010	1507	1.5	--
	11/30/2010	1200	1.87	--
2	11/12/2010	934	1.26	95.3
	11/15/2010	1618	1.23	--
	11/16/2010	1646	1.22	--
	11/17/2010	817	1.24	--
	11/18/2010	1645	1.25	--
	11/19/2010	750	1.24	--
	11/19/2010	1656	1.22	--
	11/29/2010	1500	1.66	--
	11/30/2010	1205	1.92	109.2
3	11/10/2010	1346	1.75	--
	11/11/2010	1607	1.74	--
	11/15/2010	1540	1.72	--
	11/16/2010	1115	1.72	--
	11/17/2010	918	1.72	--
	11/18/2010	1605	1.73	--
	11/19/2010	830	1.75	--
	11/19/2010	1645	1.72	--
	11/29/2010	1200	2.18	--
	11/29/2010	1635	2.16	--
	11/30/2010	840	2.33	--
	11/30/2010	1700	2.37	--
4	11/12/2010	825	1	--
	11/15/2010	1540	0.97	--
	11/16/2010	1700	0.98	--
	11/17/2010	800	0.98	--
	11/18/2010	1700	0.99	--
	11/19/2010	740	0.98	--
	11/19/2010	1710	0.95	--
	11/29/2010	1526	1.42	--
	11/30/2010	1140	1.7	--

Notes:

Coordinates are based on the North American Datum of 1983, Michigan South Zone.

Elevations are based on the National Geodetic Vertical Datum of 1929.

cfs - cubic feet per second

ft - feet

Georgia-Pacific LLC
Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site
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Table B — Area 2 — Otsego City Impoundment - River Transect Probing Data

Date	Transect	Station	Time	Distance from A-Side Bank	Water Depth (ft)	Probe Depth (ft)	Penetration (ft)	Recovery (ft)	Probe Description	Notes
11/16/2010	OCRT-02	0+13	1020	13	0.8	6.2	6.0	4.0	loose silt over gravel bottom	
		0+40	1035	40	0.4	6.0	5.5	4.3	silt/sand over stiff hard bottom	
		0+67	1050	67	2.2	5.5	5.0	3.9	silt/sand over stiff hard bottom	
		0+94	1105	94	3.6	4.7	3.9	3.4	silt/sand over stiff hard bottom	
		1+21	1325	121	4.5	4.1	3.3	2.1	silt/sand over stiff hard bottom	
		1+48	1340	148	5.3	4.4	5.0	4.1	sand over hard bottom	
		1+75	1405	175	5.7	4.3	4.5	3.2	sand/silt over hard bottom	
		2+02	1420	202	6.0	2.1	2.5	1.9	sand over hard bottom	
		2+29	1430	229	4.0	3.6	2.7	1.9	sand over hard bottom	Lost 0.5', sand on bottom
		2+56	1445	256	1.0	4.7	3.3	3.3	silt over sand/stiff hard bottom	
11/17/2010	OCRT-03	0+15	850	15	0.4	6.9	6.3	5.5	silt over sand, hard bottom	
		0+45	915	45	0.9	5.9	5.3	5.0	silt over sand, hard bottom	
		0+76	925	76	2.3	4.7	4.5	3.6	silt over sand, hard bottom	
		1+08	935	108	2.2	4.3	4.4	3.0	silt over sand, hard bottom	
		1+39	945	139	3.0	4.5	4.4	2.8	sand over hard bottom	
		1+71	956	171	4.7	3.7	4.0	2.3	silt over sand, hard bottom	
		2+02	1005	202	4.5	3.2	4.0	2.8	silt over sand, hard bottom	
		2+34	1016	234	4.0	5.5	5.6	4.2	silt/sand, hard bottom	
		2+65	1038	265	3.9	3.6	3.4	2.7	silt over sand, hard bottom	
		2+98	1049	298	0.3	6.3	5.5	2.9	silt over hard bottom	
	OCRT-04	0+12	1154	12	1.4	6.3	5.9	4.5	silt/sand over hard bottom	
		0+35	1209	35	0.6	6.6	6.4	5.0	sand/silt over hard bottom	
		0+58	1219	58	1.8	5.4	5.3	4.1	sand/silt over hard bottom	
		0+81	1228	81	2.9	6.0	6.1	4.7	sand over hard bottom	
		1+04	1249	104	3.2	4.5	4.9	4.25	sand over hard bottom	
		1+27	1306	127	4.7	4.4	5.0	4.2	sand over hard bottom	
		1+50	1321	150	6.3	2.9	3.2	2.6	sand/silt over hard bottom	
		1+73	1333	173	4.4	3.5	3.4	2.5	sand/silt over hard bottom	
		1+96	1344	196	4.5	4.2	5.0	4.6	silt over sand, hard bottom	
		2+19	1408	219	2.7	6.1	5.0	3.3	loose silt over hard bottom	
11/18/2010	OCRT-05	0+14	840	14	0.4	9.0	6.8	6.0	silt over sand, stiff hard bottom	
		0+41	855	41	0.8	8.5	6.4	5.45	sand over hard bottom	
		0+69	905	69	1.1	6.4	6.1	4.8	sand over hard bottom	
		0+96	917	96	2.0	5.0	5.0	3.85	sand over silt/sand, hard bottom	
		1+24	933	124	1.7	5.0	5.0	3.3	sand/silt over hard bottom	
		1+51	944	151	1.6	6.6	6.1	3.75	sand over silt, hard bottom	
		1+79	953	179	2.2	5.5	5.0	3.7	sand over silt, hard bottom	
		2+06	1001	206	5.0	2.3	2.3	1.9	silt/fine sand, hard bottom	
		2+34	1010	234	6.0	0.0	0.2	0.2	gravel/hard bottom	
		2+61	1018	261	4.2	1.1	1.5	1.5	fine sand/silt over gravel	

See Note on Page 2.

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Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site
Supplemental Remedial Investigations/Feasibility Studies
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Table B — Area 2 — Otsego City Impoundment - River Transect Probing Data

Date	Transect	Station	Time	Distance from A-Side Bank	Water Depth (ft)	Probe Depth (ft)	Penetration (ft)	Recovery (ft)	Probe Description	Notes
11/18/2010 (Cont.)	OCRT-06	0+12	1122	12	1.5	2.0	2.6	2.4	sand over hard bottom	
		0+35	1131	35	4.5	3.6	3.3	3.05	sand over hard bottom	
		0+58	1141	58	4.2	2.9	3.0	3.0	sand over hard bottom	
		0+82	1152	82	3.3	3.0	4.0	3.0	sand over hard bottom	
		1+05	1203	105	2.9	3.1	3.7	2.2	sand over hard bottom	
		1+28	1213	128	2.7	3.6	3.4	2.8	sand/silt over hard bottom	
		1+51	1221	151	1.8	6.0	5.0	3.5	sand over hard bottom	
		1+75	1240	175	0.6	4.0	3.1	3.0	sand over hard bottom	
		1+98	1248	198	0.4	2.0	3.5	3.2	sand over hard bottom	
		2+21	1257	221	1.0	3.6	5.7	5.0	sand over hard bottom	
	OCRT-07	0+12	1336	12	0.6	5.2	5.1	4.6	silt over sand, hard bottom	
		0+37	1346	37	3.2	2.2	2.7	2.2	sand over hard bottom	
		0+61	1355	61	4.0	2.0	2.7	2.7	sand over hard bottom	
		0+86	1404	86	4.2	2.3	3.0	2.4	sand over hard bottom	
		1+10	1413	110	4.8	0.7	0.7	0.6	sand over hard bottom	
		1+35	1420	135	3.3	1.7	1.9	1.5	sand over gravel, hard bottom	
		1+59	1428	159	1.2	3.4	3.6	3.15	sand over hard bottom	
		1+84	1437	184	0.2	1.4	3.6	3.6	sand over hard bottom	
		2+08	1447	208	0.0	6.5	6.0	5.0	sand over hard bottom	
		2+33	1503	233	1.0	5.0	5.6	4.65	sand over hard bottom	

Note:
ft - feet

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Supplemental Remedial Investigations/Feasibility Studies
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Table C — Area 2 — Otsego City Impoundment - Sediment Core Descriptions

Location	Depth (in)	Description
OCRT - 02 (0+13)	0 - 31	dark gray brown sandy silt, trace organics (roots/twigs/leaf litter)
	31 - 50	dark gray brown silty clay, trace organics (twigs/roots/shell fragments), slight odor
OCRT - 02 (0+40)	0 - 6	gray brown fine sand, trace organics (leaf litter/roots/twigs)
	6 - 14	gray brown fine sand, trace organics (twigs/roots)
	14 - 30	gray brown grading to dark brown fine sand, silty organic seam (leaf litter/twigs/roots) interbedded with fine sand layers
	30 - 54	dark gray brown silty clay, trace organics (shells), slight odor
OCRT - 02 (0+67)	0 - 2	brown fine to coarse sand, trace organics (leaves/rootlets)
	2 - 20	dark gray brown silty clay, trace organics (shell fragments/leaf litter) (highly degrading organics leaf litter)
	20 - 38	dark gray brown clayey silt, interbedded organic seam at 24 - 26" (0.5" thickness)
	38 - 50	gray brown grading to dark gray brown fine sand, trace silt, interbedded organic seam at 48" (highly degrading organics (leaf litter))
OCRT - 02 (0+94)	0 - 30	dark gray brown silty clay, trace organics (leaves/shell fragments)
	30 - 41	dark gray brown, clayey silt, trace organics (leaves/shell fragments)
	41 - 44	dark gray brown, fine sand, trace silt, trace organics (leaves)
OCRT - 02 (1+21)	0 - 12	orangish brown, fine to coarse sand, trace organics (wood and shell fragments)
	12 - 22	gray brown silty clay, trace fine sand, little small to medium pebbles, organics (wood and shell fragments)
	22 - 25	gray brown silty sand, trace organics (wood and shell fragments)
OCRT - 02 (1+48)	0 - 10	orangish brown fine to medium sand, trace organics (leaves and shells)
	10 - 17	light gray brown fine to medium sand with interbedded coarse sand seams
	17 - 26	dark gray brown silty clay
	26 - 35	dark gray brown fine to medium sand, trace coarse sand
	35 - 50	dark gray brown silty clay, trace organics (wood)
OCRT - 02 (1+75)	0 - 16	gray brown fine to coarse sand, trace organics (shells/wood) interbedded seam from 7 - 11" of large pebbles and relic shells
	16 - 22	dark gray brown, silty clay, trace organics (leaf litter)
	22 - 35	gray brown fine to coarse sand
	35 - 40	dark gray brown, silty clay, some organics (wood/shell fragments), slight odor
OCRT - 02 (2+02)	0 - 15	gray brown granule to small pebble, some fine to coarse sand, some organics (shell fragments)
	15 - 22	gray brown granular pebble, some fine to coarse sand, trace organics (shell fragments)
	22 - 24	dark gray brown, silty clay, with some highly degraded leaf litter
OCRT - 02 (2+29)	0 - 8	brown grading to dark brown fine to medium sand, trace large pebbles, trace organics (wood/shell fragments)
	8 - 22	gray brown fine to coarse sand, some shell fragments
	22 - 24	gray brown granules, some fine to coarse sand.
OCRT - 02 (2+56)	0 - 9	dark gray brown silty clay, some organics (roots/leaves/twigs) little fine sand
	9 - 28	dark gray brown silty clay, little highly degraded organics (leaf litter/wood) trace fine sand, seam at 24 - 28" of solid wood chunk
	28 - 41	light brown silty clay, some fine sand, trace organics (wood/roots) trace large pebble
OCRT - 03 (0+15)	0 - 5	dark brown very fine sand and silt, trace organics (wood/roots/leaf debris)
	5 - 16	gray brown fine to medium sand trace organics (wood/roots)
	16 - 50	gray brown fine to medium sand, trace coarse sand trace small pebble, trace organics (shells)
	50 - 55	dark gray brown fine sand trace silt, trace organics (shells)
	55 - 64	dark gray brown silty clay, slight odor
OCRT - 03 (0+45)	0 - 12	dark gray brown fine sand and silt, some organics (leaves)
	12 - 38	brown grading to gray brown fine sand, trace organics (wood/shells), 1" thick seam of highly degraded organics (wood)
	38 - 58	dark gray brown silty clay, trace organics (wood/leaves)

See Notes on Page 2.

Georgia-Pacific LLC
Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site
Supplemental Remedial Investigations/Feasibility Studies
Monthly Report #45, November 2010

Table C — Area 2 — Otsego City Impoundment - Sediment Core Descriptions

Location	Depth (in)	Description
OCRT - 03 (0+76)	0 - 10	brown fine sand, trace organics (leaves/twigs)
	10 - 15	gray brown fine to medium sand, trace coarse sand, trace small pebble
	15 - 42	dark gray brown clay with some silt, trace fine sand
	42 - 44	dark gray brown very small pebble, some organics (wood/shells), trace fine to medium
OCRT - 03 (1+08)	0 - 4	dark gray brown fine sand, some organics (partially degraded leaves)
	4 - 12	brown fine sand, trace medium to coarse sand
	12 - 48	dark gray brown clayey silt, trace organics (leaf litter/root fibers)
OCRT - 03 (1+39)	0 - 3	organics (partially degraded leaves)
	3 - 14	orangish brown fine sand, some medium sand, 1" thick coarse sand seam at 13 - 14", some shell fragments
	14 - 28	dark gray brown clayey silt
	28 - 32	dark gray brown clayey silt with some fine sand
OCRT - 03 (1+71)	0 - 2	brown very fine sand, trace small pebble, trace organics (shell fragments)
	2 - 15	dark gray brown silty clay, trace organics (root fibers)
	15 - 30	dark gray brown grading to gray brown fine sand, some medium sand, trace coarse sand, trace organics (shells)
OCRT - 03 (2+02)	0 - 3	light brown fine to medium sand, little organics (partially degraded leaves and twigs)
	3 - 17	dark gray brown silty clay
	17 - 35	dark gray brown fine sand, some coarse sand, trace organics (shells)
OCRT - 03 (2+34)	0 - 2	brown fine sand, some large pebbles
	2 - 28	dark gray brown clayey silt
	28 - 48	gray brown fine sand, little medium to coarse sand, trace broken shell fragments
	48 - 50	gray brown concretion
OCRT - 03 (2+65)	0 - 4	gray brown very fine sand, some silt, trace organics (roots/shells)
	4 - 27	dark gray brown clayey silt, trace organics (roots/shells)
	27 - 34	dark gray brown silty clay, trace fine sand, trace organics (broken shell fragments)
OCRT - 03 (2+98)	0 - 5	dark gray brown silt, some organic (degrading wood/roots)
	5 - 16	gray silty clay, trace organics (root fibers), moderate odor
	16 - 36	dark gray brown clayey silt, trace organics (root fibers), moderate odor

Notes:

All were processed on November 30, 2010.

in - inches